



JSC Astronomer Speaks At Goddard Symposium

About 100 astronomers from throughout the United States and several foreign countries were at NASA's Goddard Space Flight Center, this week (October 20-22) to participate in a symposium/workshop on X-ray astronomy. JSC's Dr. Yoji Kondo, is the chairman of the organizing committee and presented a report on results from the Skylab SO-19 Ultra-Violet Astronomy experiment.

Purpose of the discussions was to exchange information on a number of particularly interesting compact double-star systems that emit X-rays and for which there are observations in many other bands of the spectrum — radio, optical, ultraviolet. As a result, it is expected that a more accurate understanding of these objects will emerge.

Five different satellites now orbit Earth and observe celestial X-rays. NASA has project management responsibility for three of the spacecraft — Copernicus, Orbiting Solar Observatory-8 (OSO-8) and the Small Astronomy Satellite-3 (SAS-3), as well as coordination

responsibility for the European spacecraft ANS-1 (Netherlands) and Ariel-5 (United Kingdom).

There are perhaps 100 binary (double-star) X-ray objects in our galaxy alone. Discovery of these X-ray sources is a product of the space age, with spacecraft observing their emissions beyond the radiation-absorbing blanket of our atmosphere.

The compact stars in the binary systems under observation are the most exciting objects of astronomical research today. They have masses which are close to that of our Sun, but their diameters can be as small as ten kilometers. For example, neutron stars are so dense that a teaspoonful would weigh a billion tons. Black holes are even more dense; once matter is drawn into the black hole, giving off X-rays as it is squeezed down, nothing can escape — not even light.

Six new and extremely powerful X-ray sources — the brightest in the sky — have been discovered by spacecraft in the past year. Known as X-ray novae, they are noted for

(Continued on page 2)



NITTY-GRITTY CHAT — JSC Director Christopher C. Kraft, Jr., candidly answers questions from JSC Flight Operations Directorate employees in one of a series of hour-long meetings in the Bldg 30 auditorium to discuss the future mission of JSC and the agency. The sessions, expected to be completed with all JSC organizations by the end of November, follow a question-and-answer format. Kraft was somewhat taken aback in the first meeting September 22, when near the end of the session he was asked, "Do you have any answers for which anticipated questions were not asked?"

NASA, FAA Join in Aviation Safety Work

NASA has signed an agreement with the Federal Aviation Administration (FAA) of the U.S. Department of Transportation to act as a "third party" for the purpose of receiving, processing and analyzing reports of unsafe conditions or practices filed under FAA's Aviation Safety Reporting Program, Acting FAA Administrator James E. Dow has announced.

The new reporting system will modify the program announced earlier this year requiring reports to be filed directly with FAA.

Dow said, "The third party arrangement should assure everyone that the FAA's only objective in

Education Office Offers Program For School Kids

The JSC Educational Services Office presents bi-weekly programs for visiting school groups using a combination of space hardware model demonstration, slides and space mission motion pictures.

The programs start at 10:15 a.m. and run for about an hour, with occasional participation by astronauts and other JSC employees in question-and-answer sessions.

JSC employees with school-age children whose classes might want to attend one of these programs should call ext 2938 for additional information, or ext 4321 to make reservations for a school group.

The 1975-76 school year program schedule is as follows:

Elementary grades 3-6: Oct. 29, Nov. 5, 19, Dec. 3, 16, 17, Jan. 21, Feb. 17, Mar. 2, 3, 17, April 7, 21, May 5, 19.

Lower elementary grades K-2: Nov. 4, 18, Dec. 2, Jan. 27, Feb. 18, Mar. 9, 23, Apr. 13, 27, May 11.

Junior high grades 7-9: Nov. 11, 25, Dec. 10, Jan. 28, Feb. 24, Mar. 10, 24, Apr. 14, 28, May 12, 25.

Senior high grades 10-12: Nov. 12, 26, Dec. 9, Jan. 20, Feb. 25, Mar. 16, Apr. 6, 20, May 4, 18 and 26.

this program is to provide the safest possible aviation system by identifying and correcting unsafe conditions before they lead to accidents. It should therefore further stimulate the free and unrestricted flow of information." The agreement contains specific procedures to provide for protection of the identity of persons involved in reports submitted to NASA, except in those cases involving alleged criminal conduct or accidents.

The new reporting system is scheduled to be in operation by next April, Dow said, with details to be spelled out in a Federal Register notice and advisory circular that will be issued by FAA in April. In the meantime, reports will continue to be filed directly with FAA.

The agreement calls for NASA to set up an aviation safety report-

ing working group under its Research and Technology Advisory Council to advise NASA on the system's design and operation, to evaluate and review the program once it is underway and to assure that the confidentiality of those submitting reports is maintained. Its membership will include aviation and consumer groups and others involved in the operational aspects of the national aviation system.

Are you a alumnus?

We are trying to locate all former employees of the National Advisory Committee for Aeronautics. NACA was superseded by NASA on October 1, 1958.

If you ever worked for NACA, we need your name and mail code. Please take one minute, call ext 5584 and give us the information. You'll be glad you did.

John M. Eggleston



VISITING SCIENTISTS — Astronaut Richard Truly explains the Skylab Orbital Workshop trainer in Bldg 5 to members of the People's Republic of China Scientific and Technical Association who visited JSC October 14. The delegation was headed by the distinguished scientist Dr. Chou Pei-yuan, who has had a leading role in China's international and domestic scientific activities. In the US for a month, the group had already visited scientific facilities in Boston, New York, Washington, Woods Hole and Oak Ridge prior to visiting JSC. At JSC the group toured the Skylab trainer and Mission Control Center and were briefed by JSC scientists on NASA activities in plasma physics, atmospheric sciences, ultraviolet astronomy and high-energy astrophysics. The visit was sponsored by the National Science Foundation, which also has arranged for a group of distinguished American scientists to tour Chinese scientific and technical facilities.

ASTP Crewmen Hear 'Nashville Sound' Today

Soyuz crewmen Alexei Leonov and Valeriy Kubasov today are getting a taste of American country music as they and Apollo crewmen Thomas P. Stafford, Donald K.

Slayton and Vance D. Brand visit Nashville on the penultimate stop of the two-week nationwide goodwill tour. Following an afternoon tour of the Country Music Hall of Fame, the ASTP crew will have dinner at the Opryland's Plaza Restaurant before hearing Conway Twitty render "Hello Darling" in Russian at tonight's Grand Old Opry broadcast.

The crew Saturday will continue to New York where United Nations Secretary General Kurt Waldheim will honor them at a reception prior to a tour of the UN. The ASTP crew tour of the country will end with a farewell dinner at the Waldorf Astoria Saturday night. Sunday, the crews will return to Houston and Moscow.

The ASTP crewmen Thursday laid wreaths on the grave of Rev. Martin Luther King and toured the Atlanta University Center in a visit to Atlanta. Activities in Washington Wednesday included a tour of the Smithsonian Institution's Air and Space Museum and a joint House and Senate reception.

The US half of the ASTP crew tour began in Washington October 13 and included stops in Chicago, Omaha, Salt Lake City, San Francisco, Reno, Lake Tahoe and Los Angeles before the return to Washington.

Вы говорит по-русски?

JSC employees interested in maintaining Russian language proficiency through a UofH refresher course starting in January should submit a JSC Form 75 to AH3 by October 31.



PEOPLE WITH IDEAS — JSC inventors and suggestors split \$1795 in cash October 14, with \$1245 paid out in suggestion awards and \$550 in invention awards. In the photo above, JSC Suggestion Committee chairman Jack Kinzler stands at left. Suggestors and inventors in the photo (not in order) are: Roy W. Collins, S. Harry Berlocher, Tom F. Brahm, James L. Youngblood, Marvin J. Warnock, Arnold O. Bankey, John W. Maas, Richard G. Juday, J. W. Kalk, Richard T. Walter, Stanley G. Avent and Walter R. Huntley, suggestors. (Not in photo: Jenny P. Burgan, Charles Meyer, Jr., Harold Siegfried, W. Paul Hiik.) Inventors are: Dr. William R. Downs, Herbert S. Kobayshi, Herbert A. Zook and Richard W. High.

Voluntary Action Center Seeks Help

Would you like to help in giving parties, playing games or telling stories to retarded and handicapped children — or share your talent in arts and crafts by teaching a course to young children or the elderly?

Maybe you would rather work with troubled youth — answering

“hot-lines”, administrative work in the office, or working directly with the youngsters, giving emotional support and friendship. Have you ever thought you would like to run a gift shop in a hospital or just provide companionship to the sick, shut-ins, the elderly or to children who have no mother or father?

These and many other opportunities are waiting for you if you can give a few hours of your time each week. The Voluntary Action Center of Houston-Harris County is a non-profit organization which will bring you together with service agencies needing volunteers.

An office to serve eastern and southeastern Harris County has been established in the Burke Road Church of Christ, 2424 Burke Road, Pasadena. It is open Tuesday, Wednesday and Thursday. Call 946-8330 or the Houston office 521-9393 for an appointment.

Volunteer for action — your community needs you.

Astronomers Meet *(Continued from page 1)*

suddenly brightening and then completely fading away after a few months. The latest, discovered in August, is as bright as the Sun and more than ten times brighter than the easily seen Crab Nebula, the most famous supernova (exploding star).

Some of the X-ray binary systems discussed were:

Hercules X-1 — An X-ray pulsar that is probably a neutron star.
Centaurus X-3 — Another X-ray pulsar also likely to be a neutron star, but with a binary system

differing considerably from Hercules X-1.

Cygnus X-1 — Possibly a black hole.
Cygnus X-3 — An object that is a major puzzle, with highly variable X-ray spectra, strong radio and infrared emissions, but not visible optically.

A0620-00 — A new X-ray nova now being tracked in the optical as well as in the X-ray bands.

3U0900-40 (Vela X-1) — New measurements of this binary system now make it possible to determine the masses of both stars.

LULAC Meets

The NASA-area LULAC Council will hold a regular meeting November 5 at 5:15 p.m. at the Gilruth Recreation Center. Persons interested in joining should call 482-2794 after 6.

JSC to Recycle Computer Cards

The cost saving from recycling waste paper is extremely variable and is dependent on the demand for waste paper products in the building industry. Computer cards represent a higher quality waste paper item for which there is a current and more stable demand.

Measures have been taken, at JSC to increase the return of used computer cards for recycling purposes. Special purpose carts, conspicuously identified, have been placed in several locations throughout the Center for collection of the cards. All JSC personnel are requested to deposit used computer cards in the carts. The janitorial staff will return the cards to the Logistics Division. For a particularly large volume of cards, call Dolores Briggs, ext 4183, for special pickup. Carts are currently in place in the following locations: buildings 12, 30, 17, 5, and 35, IBM (offsite), LEC (offsite).

A somewhat comparable plan is being considered for computer

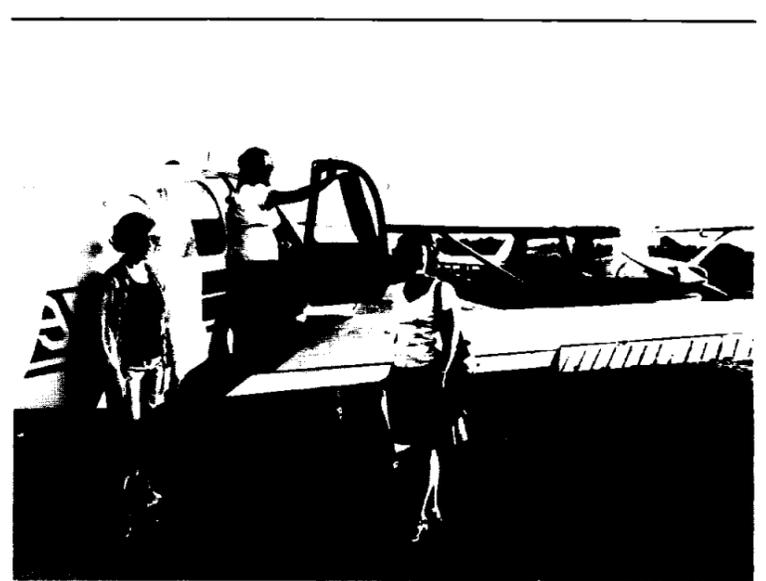
printout paper should market conditions for this material become more favorable.

Flyers Review News FAA Regs

The JSC Aero Club will meet at 5:15 p.m. Wednesday at the Gilruth Recreation Center. Several FAA flight films will be shown and an FAA representative will answer questions on new regulations for pilots and airplanes.

The meeting will be open to all pilots at JSC and those attending will be eligible to win (free) GAMA's Safe Pilot Sweepstakes II \$40,000 airplane. There are openings in the Club's Bonanza section for those who do not win the airplane.

For further information and reservations contact Frank Baiamonte at 483-4061 or Jackie Bohannon at 483-4161.



WINGS OF MAN? — Aviatrices Alta Walker, Darla Kilpatrick and Cindy Dugas kick the tires and preflight the JSC Aero Club's K-35 Beech Bonanza. The Cessna 150 in the background and a Cessna 172 are also in the Club's inventory.



ORBITER HATCHERY — Major assemblies that will come together to form Space Shuttle Orbiter 101 are shown at Rockwell International Corporation's Palmdale, Calif. final assembly plant. In the left foreground is the vertical fin, with the wing panels immediately behind the fin jig. The mid and aft fuselage are mated in the workstand at upper right, awaiting delivery of the forward fuselage and crew compartment. (RI photo)

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ROUNDUP



NASA LYNDON B. JOHNSON SPACE CENTER

HOUSTON, TEXAS

The Roundup is an official publication of the National Aeronautics and Space Administration Lyndon B. Johnson Space Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for JSC employees.

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RECENT VISITOR — Technical Assistant to the JSC Director George Abbey explains the Space Shuttle to Greek Ambassador to the US Menelas Alexandrakis during the ambassador's September 25 tour of JSC.

EAA ATTRACTIONS



TICKETS AVAILABLE

On sale in Bldg 11 Exchange Store 10 a.m. to 2 p.m., no refunds: Astroworld — adults \$5, children \$4 (regular \$6.50 and \$5.50); ABC Interstate Theatre tickets \$1.50; free Disney Magic Kingdom cards; free Six Flags Over Texas Fun Seekers cards and Lion Country Safari cards.

Dinner theaters: Windmill Dinner Theater *Everybody Loves Opal* starring Martha Raye, \$14/couple (regular \$22) not valid on Friday or Saturday nights; Tuesday October 28 — last day to buy tickets — valid through November 2; Dean Goss Dinner Theater now has Murray Schisgal comedy *Luv*, \$16/couple (regular \$22) through November 9 — not valid Saturday nights.

COMPUTER HOBBYIST CLUB

Anyone interested in the exciting new hobby of home computers? The home computer has recently become an affordable reality with the availability of quality micro-processor computer systems in both kit and assembled forms. Computer hobbyists have cut costs by using cassette tape recorders for mass memory storage, TV sets for computer display terminals, and quality surplus equipment such as keyboards. The home computer has been used for home entertainment projects such as games and music synthesizers, in addition to practical applications like home book-keeping systems, teaching machines, home security monitors and controllers, and computerized radio amateur stations.

A number of NASA/JSC employees and contractors are involved in home computer projects and are interested in forming an EEA sponsored club. Through a computer hobbyist club computer systems can be demonstrated, literature and newsletters from other clubs distributed, beginners helped, computer programs shared, and group discount purchases arranged.

Inquiries for this club should be directed to Marlowe Cassetti, FR5.

the November or January leagues, contact the Gilruth Center x3594.

TUG-O-WAR COMPETITION

There will be a double elimination tug-o-war tournament at the Gilruth Recreation Center November 18 at 5:30 P.M. There is no fee. Competition is limited to NASA and on-site contract employees. From the results of the tournament, a challenge ladder will be formed with the strongest team at the top and the weakest at the bottom. Form your team now. To register and for further information call x3594 before November 14.

FREE THROW SHOOTING CHAMPIONSHIP

It is time to start practicing for the individual free throw shooting contest to be held at the Gilruth Recreation Center during the weeks of November 10 and 17. The fee is 50 cents and competition is limited to NASA and on-site employees. A trophy will be awarded to the best shooter. A challenge ladder will be formed from the results of the competition. The individual in the number one position on the ladder will keep the trophy until he loses his position. To register and for further information call x3594.

MEN'S BASKETBALL

A men's basketball league will start November 17 for 7 weeks. The league will be limited to eight teams with EAA teams having priority of a first come, first served basis. The fee is \$75. To register and for further information call x3594 on or before November 4. Rosters and fees are due November 7. This will be considered an off-season league with the official leagues starting the first of January. All teams are required to have a jersey with a permanent number front and back.

BASKETBALL SCOREKEEPERS WANTED

Volunteer scorekeepers are needed for the up-coming basketball season at the Gilruth Recreation Center. If interested in keeping the score for

WOMEN'S EXERCISE CLASS

Attention non-working dependents! Here is your chance to slim up before the holidays. A morning exercise class will start November 11 for 6 weeks at the Gilruth Recreation Center. The class will meet Tuesday and Thursday 9:15 to 10:15. The fee is \$8. To register and for further information call x3594. Payment is due November 5.



DEFENSIVE DRIVING COURSE

This column carried a notice September 26 about the defensive driving course being offered during November for auto insurance discount eligibility. The November courses are for those employees who took the course three years ago; a similar course will be offered next year for those who took the course two years ago. By then, it will have been three years ago and everyone will have to dredge up their cards and count backward on their fingers (or Hewlett-Packards) to see whether they need to enroll or not.

JSC DANCE CLUB

Need a partner for the next series of dance classes starting November 5? Guys, I have two dolls right now who need partners. Intermediate and advanced classes will be offered Wednesday nights from 8:15 to 9:45, with one additional intermediate class at 6:45. The cost is \$37/couple. Contact Edi Quinn at ext 3431 or 334-5170.

Roundup Swap-Shop

Swap Shop advertising is available to JSC and on-site contractor personnel. Articles or services must be offered as advertised, without regard to race, religion, sex or national origin. Ads should be 20 words or less, including home telephone number. Name and office code must accompany, but need not be included in ad copy. Typed or printed copy must be received (AP3 Attn: Roundup) by Thursday of the week before publication.

BOATS

74 Wellcraft Mercruiser I/O 140, under 30 hrs, like new, loaded w/xtras, big-wheel galv steel trlr, \$3995. 482-2052.
12-ft board-type sailboat w/daggerboard, main & jib, \$125. 474-4336.
68 Evinrude OB engine, 85 hp, elec shft, CD ign, xcint cond, \$650. Mallary, 482-7081.
14-ft Snark Mach II sailboat, skin/foam hull, 85 sq ft lateen rig, teak/aluminum hdwe, xcint sailer, \$375. Mallary, 482-7081.
Remote 6-gal gastank w/hose for Johnson/Evinrude, rusty, \$9. 488-2652.

VEHICLES

68 Chevy BelAir 4-dr sedan, xcint cond, 55,000 miles, orig owner, \$700. Hervig, 488-3618 after 5.
74 Lark 18-ft travel trlr, self-cont, air, tndm wheels, xcint cond, \$2700. Haefner, 483-2281.
73 Apollo motor home, fiberglass over ring-of-steel const, roof and motor air, loaded. 944-3671 after 5.
65 Plym Barracuda, make offer. 944-3671 after 5.
71 Toyota Corona Mk. II 2-dr hrdtp, air, 4-spd, 4-cyl, \$1450 firm. Bird, 487-0942.
71 Camaro 350, air, std trans, new gold paint, good tires, xcint brakes. 482-7715 after 5.
72 Cutlass Supreme Aztec gold/black hrdtp, low miles, loaded, xcint cond. 332-4732.
24-in and 26-in boys' bikes, \$15. 332-4732.
75 Kawasaki 175-cc Enduro, female adult owned, immaculate, \$580. West, 554-6304.
74 Mustang II 4-cyl hatchback, auto, air, xcint cond. 554-6684 or 332-6726.
71 Honda SL, headers, dual carbs, helmet & shield, semistock, owner's manual, 13,000 miles, \$400. 944-3841.
67 Cougar 289 V8, auto, air, looks/runs good. Machell, 488-7602.
72 2-dr Pontiac Brougham Catalina, low miles, one owner, new radials, xcint cond, \$2495. Holloway, 488-6103 after 5.
74 Yamaha 200cc, low miles, many xtras, xcint cond, \$750. 554-7171.
Rent Jayco hrdtp fldwn camper, kitch, icebox, sleeps 8, low profile, pulls easy, \$10/day, \$57/wk, \$25/wkend (\$25 dep reserves). Kilbourn, 482-7879.
70 Buick 9-pass Estate wagon, zero miles on rebuilt engine, air, all pwr, AM-FM-tape, Naugahyde seats, rack, mag wheels, xcint cond. 488-2267.

PETS

Baby boa: do Christmas shopping early and have something to be grateful for on Thanksgiving day; only \$16.66/ft. Rubenstein, 334-2354.

WANTED

To buy 13-16-ft whaler-type boat, motor & trlr. Plauche, 483-5361.
Would the person who removed the wallet from Bldg 45 Rm 433 Sept 11 please return personal effects to Anne Brenton/BR121.
73 or later Toyota Corolla, Plym Valiant/Duster or Dodge Demon/Dart 6 cyl, no xtras, 20,000 miles or less, up to \$2000. Bullock, 488-1042.
Female roommate to share expenses in Pasadena, may have a child. Scott, 487-3128.

PROPERTY AND RENTALS

Rent 2-bdr 2-bath duplex to adults, equipped kitchen, util room, 2-car garage, fenced yard, no pets. Patterson, 471-4419.
4-2 1/2-2 colonial in El Lago, 2750 sq ft, oak-wooded acre, brick patio, walk dist to school, community pool, tennis, lake, by owner. 334-3001.
4-br house for rent in Forest Bend, fireplace, fenced, 1600 sq. ft. Actkinson, 488-2857.
2-acre lot in Friendswood El Dorado subdiv, \$7500. Zupp, 482-7156.
Exec 4-3-2 w/effic apt, wooded 3/4 acre waterfront south of Hofbraugarten, formal dining, sunken lvg rm, umpteen builtins. Barger, 534-4986.
1/2-acre wooded on Lake Houston, golf, clubhouse, launch ramp, (Indian Shores), \$1700 equity plus \$2733 @ \$50/mo. Graham, 944-9030.
Oakbrook 3-2-2 cust built, fireplace, cathedral ceiling, cov patio, new carp, beautiful fenced yard, open house Sun 1-5, 1423 Festival, 488-1931.

HOUSEHOLD ARTICLES

Two black leather-like bar stools, swivel w/back, reg \$35 ea, now \$14 ea. Andrea, 334-2129 after 5.
Corner unit couch (2 couches & table). 332-4732.
Two art tables, best offer. 334-2360.
Combo TV/AM-FM radio/rec plyr, new color tube. Smith, 488-1573.
Modern china hutch, \$135; matching table w/2 leafs, \$95; corner end table, \$75, all xcint cond. Hunt, 334-3101.

MISCELLANEOUS

Acoustic 270 amp w/201 bottom, 600 w, xcint cond, best offer, 554-6684 or 332-6726.
HO train 4x6 ft w/bldgs, trees, lights, remote swtchn. 944-3671 after 5.
Miniature oxyacetylene welding torch, ideal for jewelry and other fine work, used little, cost \$55-sell \$30. Stubblefield, 483-2791.
Portacrib, \$18; bay dressing/strg table, \$15; sterilizer w/bottles, \$5; baby's lamp, \$2.50; diaper pail, \$1.50; hobbyhorse stick, \$2. 334-3001.
Hahn Eclipse self-prop lwnmwr, comp ovrlhd, big-wheeled, \$60; fert sprdr, \$8; men's 195 cm snowskis, poles, boots, \$25; two sets isometric gym equip, \$5 ea. 334-3001.
Old barber chair \$125; antique square grand piano, \$375; girl's 3-spd bike, \$15. Lang, 488-4218.
Two 6.00x12 nylon-cord used tires, \$5 ea. Kosel, 534-6098.
Stereo comps: Realistic 82-w rcvr, \$100; one pr 2-way 12-in spkr systs, solid ash, \$150. 488-5037.
Four-player Williams Cabaret pinball machine, xcint cond, everything works, have schematic, xtra parts. \$450. Rosenberg, 333-3866.
Four Astroworld tickets, 75 season only, \$4.50 ea. 482-0367 after 5.
Firewood, \$30/half cord. 482-6379.
Golfclubs: junior set (Ram/Gene Litter), driver, 5, 7 & 9 irons, putter, bag, good cond. 483-4588.
Kimball antique upright practice piano, \$150. 946-3825.
Heathkit electronic CD ignition system, \$45, 488-1732 after 6.



DEVELOPED MANAGERS — Graduates of the third JSC Management Development Program are shown following award of graduation certificates last month. The third MDP session began in the Fall of 1973 and covered two years of comprehensive graduate work at the University of Houston College of Business Administration in R&D administration and management techniques. A total of 50 JSC managers have graduated from the MDP since inception in 1971. The program will end in May 1976. Left to right, first row: John Mitchell, Willie Wright, Richard Gillen, Hal Lambert, Zach Kirkland, Wayne Williams and MDP Coordinator Anne Sherman. Back row: John McIver, Chet Vaughn, Ben Drone, Bill Andrews, Joe Reyes, Charlie Harlan, Jake Smith, Shirley Hinson, Dick Baldwin, Dick Thompson and MDP Director Dr. Dutch Holland.

Good food, dunk tanks, clowns, cotton candy, good weather, ants...

